Metropolitan Highway System And 2018 Triennial Report

Review of Consultant Findings & Next Steps

Draft

Overview of the Metropolitan Highway System (MHS)

- Triennial Report on condition of the Metropolitan Highway System (MHS) goes beyond the required 3 year timeframe to look at overall State of Good Repair

- Reports supplements other asset management systems and reports to shape capital investment program driven by asset condition

- Achieving State of Good Repair will need to occur over an extended period to address challenges of sequencing projects without unduly inconveniencing drivers or limiting access to Boston

Components of the Metropolitan Highway System (MHS)

- Legislatively defined to include predominately tolled highway system that consists of the Boston Extension, the Callahan Tunnel, the Central Artery, the Central Artery North Area of the Mass Turnpike, the Sumner Tunnel, and the Ted Williams Tunnel, as defined in M.G.L. c. 6C, § 1. The collection of assets span 75 years of infrastructure construction
- Includes all harbor tunnels, bridges and support structures like vent buildings or pump stations
- Tobin Bridge is excluded for purposes of the Triennial Report

FACILITY	CONSTRUCTION ERA
Sumner/Callahan Tunnels	**Sumner 1930's/Callahan 1960's**
I90 Boston Extension (Weston to Boston)	**1964**
Central Artery North Area Tunnel (CANA)	**1980's**
Central Artery/Tunnel	**Ted Williams Tunnel 1996; Central Artery Tunnels 2003**

Triennial Report Background

- Stipulated by Metropolitan Highway System (MHS) Trust Agreement and is provided to bond holders and rating agencies
- Provides a third party's recommendations for maintenance & repair
- Requires a three year evaluation, but MassDOT has expanded this evaluation to cover 10 years

2018 Consultant scope of work included:

- Independent verification of inspections performed by Highway Staff
- Visual inspection of MHS assets not inspected since previous triennial
- Research for records of inspection, maintenance and repair made over the past three years
- Research scheduled projects and maintenance schedules
- Estimation of costs necessary to repair or maintain the MHS – including $200 million for work on the Allston Viaduct.
  - Allston Project is separately being cost estimated and likely to cost at least $1 billion
  - Therefore we subtracted the $200M – so the MHS estimate excludes Allston

Basis of Report

- Report is based largely off of inspection reports routinely conducted by MassDOT Pavement, Bridge and Tunnel Inspection Programs – these inspections are conducted at a minimum of every two years:
  - MassDOT's Tunnel Inspection program served as the model for the development of Federal Highway's National Tunnel Inspection System (NTIS)
  - Over 100 Tunnel Inspections conducted reports filed in calendar year 2018 alone
  - In addition to scheduled detailed inspections, MassDOT Maintenance staff inspect several elements of various structures on a daily basis

Report Findings: Condition - Bridge Projects

- Consultant was directed to isolate recommendations for the Allston viaduct and limited to a $200M figure to account for maintenance or early action projects
  - Allston SGR needs will be addressed by multimodal project so $200 million should be excluded to calculate SGR needs excluding Allston
- Replacement and rehabilitation of Boston Extension Bridges
    - Includes I-90/I-95 Interchange bridge structures
- Preservation of the Bunker Hill/Zakim and Leverett Connector Structures

Report Findings: Tunnel Projects

- Major tunnel projects include:

Project	Estimate
Sumner Tunnel Rehab	$118,000,000
CANA Tunnel Rehab	$50,000,000
Prudential Tunnel Ventilation *	$70,000,000
Callahan Tunnel Ceiling Replacement	$40,000,000
CA/T Lighting Replacement	$157,500,000
Sumner/Callahan – MEP	$17,000,000

- Costs shown are preliminary and subject to change
- Some projects may be funded though sources outside of/in addition to the MHS (e.g. CARM)
- Prudential Tunnel Ventilation Costs will be partially offset by Air Rights Investments

Report Findings: Condition - Tunnel Projects

- Sumner Tunnel
  - This was identified as the oldest and highest priority in the MHS
  - Complete rehabilitation is needed
- Callahan Tunnel
  - Ceiling needs to be replaced
  - The walls and road surface were replaced already
- CANA Tunnel
  - Lighting and ventilation
  - This is a mid-life investment in the structure

Report Findings: Cost and Condition

- Nothing in the Report was a surprise and largely validated the portfolio of projects under design for the MHS

- Establishes a State of Good Repair priority list
  - Report identifies State of Good Repair projects – not a construction schedule
  - Uses a 10 year window for calculation purposes only, actual construction projects need to be programmed and sequenced

Cost Estimate For State of Good Repair:

$1.63 Billion – Amount identified in the Triennial

$1.43 Billion when excluding Allston

Developing a Feasible Plan

- Maintaining and modernizing the MHS must be planned in coordination with related MassDOT projects
  - Tobin Bridge and Chelsea Viaduct
  - Prudential Tunnel and air rights projects
  - Allston Multimodal Project
- Coordinated plan must account for
  - MBTA projects (including GLX)
  - Major development and other projects in the same geography (e.g. Sumner Tunnel work must be sequenced accounting for projects at Suffolk Downs/Logan Airport)
- Given complexity of sequencing, MassDOT will expand geographic reach of traffic model originally developed for the Accelerated Bridge Program / Charles River crossings
- Plan will also need to address investments needed to expand travel options during major construction projects and mitigate traffic and community impacts

Next Steps

- By March 1st
  - A Working Group will be formed by project development, traffic, and construction engineers to ensure the needs of the MHS are addressed in a sequential order without overly disrupting mobility
  - This working group will identify design priorities for critical projects
  - The Group will begin to work to develop a feasible, coordinated long term plan on bringing the MHS to a SGR
  - The Group will also manage impacts to the region

- MassDOT will continue to work with FHWA to access funds from CARM for appropriate investments

- Highway will propose new MHS projects prioritized in the Triennial in the 2020-2024 CIP